

TITLE: Prevalence of *Shigella*/Enteroinvasive *Escherichia coli* pathovar in children with and without diarrhea from Brazilian semi-arid

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ABSTRACT: Enteric infectious diseases are a major health problem worldwide, especially in children younger than five years, and *Shigella* spp. are listed as one of the most prevalent etiological agents. There is no vaccine for shigellosis so far and understanding the distribution of this pathogen is crucial for achieving it. Recent genomic studies have proposed the existence of a new pathotype (*Shigella*/Enteroinvasive *Escherichia coli*-EIEC). Conversely, there are few reports considering this new pathotype description in Brazil, especially in the Semi-arid region. The aim of this study was to determine the prevalence and distribution of this pathogen across six cities from Brazilian Semi-arid region. A case-control study included a total of 1200 children (600 cases and 600 controls) of 2-36 months of age from 2009 to 2011. Cases were defined as presenting diarrhea in the last 14 days. Children were from Crato (CE), Picos (PI), Ouricuri (PE), Cajazeiras (PB), Souza (CE) and Patos (PB) cities (n = 100 cases and 100 controls for each city). Fecal samples were collected and analyzed for the presence of *ipaH* gene (diagnostic marker for *Shigella* sp./EIEC) by xMAP technology multiplex assay (Bioplex 200, Biorad) as a screening. Positive samples were further confirmed for *ipaH* gene presence by conventional Polymerase Chain Reaction (PCR). Among the study population, *Shigella*/EIEC was diagnosed in 5% (60/1200), as 7% (42/600) in the cases and 3% (18/600) in the controls (p = 0.0021, OR = 2.43, IC95% 1,384 to 4,279). The highest prevalence of *Shigella*/EIEC was observed in Crato (10.5%, 21/200), followed by Picos (6%, 12/200), whereas the lowest prevalence was observed in Cajazeiras (1.5%, 3/200). In conclusion, this study showed association of *Shigella*/EIEC pathotype with diarrhea and described its distribution across different sites from Brazilian semi-arid region, indicating potential areas of transmission of *Shigella*/EIEC. Further studies are necessary for evaluating genetic, clinical and epidemiological features of these infections.

Keywords: *Shigella* spp., diarrhea, multiplex PCR

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